

**REMARKS**

Claims 1-20 were pending in the present application. Claim 2 has been canceled without prejudice to its presentation in another application. Claim 1 has been amended herein. No new matter has been added. Upon entry of the present amendment, claims 1 and 3-20 will remain pending.

**I. The Claimed Invention Is Novel****A. The Larsson Reference**

Claims 1-12, 16, 17, and 19 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by PCT Publication No. WO 01/92263 (hereinafter, the “Larsson reference”). Applicants traverse the rejection and respectfully request reconsideration thereof because the Larsson reference does not teach the claimed invention.

The Larsson reference reports the conversion of 4,6-dichloro-5-[(E)-2-(4-methylphenyl)diazenyl]-2-(propylsulfanyl)pyrimidine to 4,6-dichloro-2-propylthio-pyrimidine-5-amine, which is achieved by hydrogenation for 1 hour at 40°C and 3.2 bar over a platinum on carbon catalyst (see, page 14, step 4).

In contrast, claim 1 recites, in part, conducting a one-pot hydrogenation of a compound of formula (III) “(i) firstly at about 20°C to form a compound of formula (IV)” … “(ii) and then at about 40°C...” Applicants’ undersigned representative is unable to locate any portion of the Larsson reference that teaches a one-pot hydrogenation of a compound of formula (III) “(i) firstly at about 20°C to form a compound of formula (IV)” as recited in claim 1. Thus, the Larsson reference does not teach every element recited in claim 1. Therefore, the Larsson reference does not anticipate Applicants’ claimed invention. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §102(b) be withdrawn.

**B. The Fisons Reference**

Claims 1-5, 9, and 11 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by European patent publication No. EP 0508687 (hereinafter, the “Fisons reference”).

Applicants traverse the rejection and respectfully request reconsideration thereof because the Fisons reference does not teach the claimed invention.

The Fisons reference reports the conversion of 4,6-dichloro-5-nitro-2-propylthiopyrimidine to 4,6-dichloro-2-propylthio-pyrimidine-5-amine, which is achieved by reduction using reduced iron powder (see, Example 9, step iv).

In contrast, claim 1 recites, in part, hydrogenating a compound of formula (II) with “a suitable transition metal catalyst in a C<sub>1-6</sub> aliphatic alcohol, an ether, an ester or a hydrocarbon as solvent.” Thus, in the present invention, the reduction is achieved by catalytic hydrogenation, which uses hydrogen gas in the presence of a catalyst. To make this point even more clear, Applicants have amended claim 1 to further recite that the hydrogenation takes place “in the presence of hydrogen gas,” support for which can be found, for instance, in Example 1. No change in claim scope is intended. Applicants’ undersigned representative is unable to locate any portion of the Fisons reference that teaches hydrogenating a compound of formula (II) with “a suitable transition metal catalyst in a C<sub>1-6</sub> aliphatic alcohol, an ether, an ester or a hydrocarbon as solvent, in the presence of hydrogen gas” as recited in claim 1. Thus, the Fisons reference does not teach every element recited in claim 1. Therefore, the Fisons reference does not anticipate Applicants’ claimed invention. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §102(b) be withdrawn.

## II. The Claimed Invention Is Not Obvious

### A. The Combination of the Larsson and Krauter References

Claims 1-20 are rejected under 35 U.S.C. §103(a) as allegedly being obvious in view of the combination of the Larsson reference with U.S. Patent No. 6,818,720 (hereinafter, the “Krauter reference”). The Action asserts that it would have been *prima facie* obvious to “make the compound of formula I using the overall process taught by the combined references by varying the catalyst, solvent temperature and pressure of the reaction and expect to obtain the desired product.” Applicants traverse the rejection and respectfully request reconsideration thereof because the combination of cited references does not produce the claimed invention.

The Krauter reference reports supported, hydrogenating catalysts in powder form containing, as a catalytically active component, a primary precious metal component, a secondary precious metal component and one or more non-precious metal components, which are used for the hydrogenation of nitroaromatics, such as nitrobenzene and DNT.

Claim 1 recites, in part, conducting a one-pot hydrogenation of a compound of formula (III) “(i) firstly at about 20°C to form a compound of formula (IV)” ... “(ii) and then at about 40°C...” As stated above, Applicants’ undersigned representative is unable to locate any portion of the Larsson reference that teaches a one-pot hydrogenation of a compound of formula (III) “(i) firstly at about 20°C to form a compound of formula (IV)” as recited in claim 1. The Krauter reference does not cure this deficiency. Indeed, Applicants’ undersigned representative is unable to locate any portion of the Krauter reference that teaches a one-pot hydrogenation of a compound of formula (III) “(i) firstly at about 20°C to form a compound of formula (IV)” as recited in claim 1. Thus, even when the teachings of the Larsson and Krauter reference are combined, Applicants’ claimed invention is not produced.

The Office takes the position that varying the catalyst, solvent temperature and pressure of the reaction are simply obvious tasks for optimizing the reaction. Nothing of the sort is true regarding the claimed invention. If the reaction is performed according to the methods reported in the Larsson reference, the compounds of formula III, IV, and I will be present in the reaction mixture at the same time. In such instance, the formed compound of formula I then immediately reacts with the compound of formula III to produce an impurity. In contrast, conducting the hydrogenation of 4,6-dichloro-5-[(E)-2-(4-methylphenyl)diazenyl]-2-(propylsulfanyl)pyrimidine in accordance with the claimed methods, the compound of formula IV is produced after reaction at 20°C, whereas the compound of formula I is not produced until the reaction at 40°C, at which time the compound of formula III has already been converted to the compound of formula IV. Thus, the undesired reaction of the compound of formula III with the compound of formula I is avoided. Indeed, Applicants are unaware of any disclosure in the literature of the problem associated with the reaction between the compound of formula III with the compound of formula I.

Thus, the combination of the Larsson and Krauter references does not produce Applicants' claimed invention. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §103(a) be withdrawn.

### **III. The Claimed Invention Is Sufficiently Enabled**

Claims 1-20 are rejected under 35 U.S.C. §112, first paragraph as allegedly failing to provide an enabling disclosure. Applicants thank the Office for acknowledging that Applicants' claimed invention is enabled when X is Cl (see page 2 of the Office Action). The Office, however, mistakenly asserts that the specification "does not reasonably provide enablement for compound of formula I wherein X= Br or I, which are susceptible to the catalytic hydrogenation" (see page 2 of the Office Action). Although Applicants disagree with the reasoning set forth in the Office Action, solely to advance prosecution, Claim 1 has been amended to recite that X is chloro. Applicants reserve the right to file and prosecute claims directed to the canceled subject matter in another application without prejudice. In view of the foregoing, Applicants respectfully request that the rejection under 35 U.S.C. §112, first paragraph be withdrawn.

### **IV. Obviousness-Type Double Patenting**

Claims 1-20 are provisionally rejected under the doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 3 and 4 of co-pending application Serial No. 11/591,464. The Office asserts that the claims are not patentably distinct from each other because "the process embraced in the instant claims are also embraced in the process claims 3 and 4 of the copending application" (see Office Action at page 9). Applicants submit that the Office has not established a *prima facie* case of obviousness. An obviousness-type double patenting rejection is analogous to a failure to meet the nonobviousness requirement of 35 U.S.C. §103. *In re Braithwaite*, 154 U.S.P.Q. 29, 34 (C.C.P.A. 1967) and *In re Longi*, 225 U.S.P.Q. 645, 648 n.4 (Fed. Cir. 1985). Thus, under the law, the pivotal question in an obviousness-type double patenting analysis is: Does any claim in the application define merely an obvious variation of an invention disclosed and claimed in the patent? *In re Vogel*, 164 U.S.P.Q. 619 (C.C.P.A. 1970). If the answer to this question is no, there can be no double patenting. In making this analysis, then,

the proper inquiry is as taught in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). See, M.P.E.P. §804. It appears that no such Graham inquiry has been carried out. Accordingly, Applicants respectfully will defer response to this provisional rejection.

**V. Conclusion**

In view of the foregoing, Applicants respectfully submit that the claims are in condition for allowance. An early notice of the same is earnestly solicited. The Examiner is invited to contact Applicants' undersigned representative at (610) 640-7859 if there are any questions regarding Applicants' claimed invention.

The Commissioner is hereby authorized to debit any underpayment of fee due or credit any overpayment to Deposit Account No. 50-0436.

Respectfully submitted,

/Paul K. Legaard, Reg.# 38534/  
Paul K. Legaard

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Pepper Hamilton LLP  
400 Berwyn Park  
899 Cassatt Road  
Berwyn, PA 19312-1183

Telephone: 610.640.7859  
Facsimile: 267.430.7647